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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/734,162

12/15/2003

Ji Yong Park

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EXAMINER

LANDAU, MATTHEW C

ART UNIT

PAPER NUMBER

2815

MAIL DATE

DELIVERY MODE

12/14/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/734,162

Applicant(s)

PARK ET AL.

Examiner

Matthew C. Landau

Art Unit

2815

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 05 October 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3-5,7 and 9-11 is/are rejected.
- 7) ☒ Claim(s) 2,6,8 and 12 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 December 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Drawings***

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the width of an activation layer including the LDD region or offset region is shorter than a distance between the primary crystal grain boundaries must be shown or the feature(s) canceled from the claim(s). Figures 5 and 6 show the width of the LDD or offset region (indicated as region "IP") is shorter than the distance between the primary crystal grain boundaries, but they do not show that the width of the entire activation layer is smaller than that distance. No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 3-5, 7, and 9-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Oka et al. (US Pat. 6,184,541, hereinafter Oka).

Regarding claims 1, 4, 5, 7, 10, 11, 13, and 14, Figures 1a and 1b of Oka disclose a TFT comprising a light doped drain (LDD) region (portion of region 4 included in width “d”, on the right side) and a plurality of primary crystal grain boundaries 2 (boundaries perpendicular to current direction), wherein the TFT is formed so that the primary crystal grain boundaries of a polysilicon substrate 3 are positioned in channel 8, source 6, and drain 7 regions, but not positioned in the LDD region. Regarding claims 4, 7, 10, and 14, Oka discloses the TFT is used in an LCD display. Note that the portion of region 4 denoted by the width “d” can be considered the LDD region, since the other portion of region 4 was doped with additional impurities during heat treatment (col. 3, lines 60-66). Therefore, the other portion of region 4 would no longer be considered “lightly doped”. Also, the portion denoted by width “d” could at least be considered an “offset region”.

Regarding claims 3 and 9, the limitation “the polysilicon substrate is formed by sequential lateral solidification (SLS)” is merely a product-by-process limitation that does not structurally distinguish the claimed invention over the prior art. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. *In re Thorpe*, 227 USPQ 964, 966.

#### ***Allowable Subject Matter***

Claims 2, 6, 8, and 12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

#### ***Response to Arguments***

Applicant's arguments filed October 5, 2007 have been fully considered but they are not persuasive.

Applicant argues regarding Oka that “the entire region 4 having a low concentration is the LDD region, not just a portion “d” of region 4, as alleged in the Office Action”. The Examiner respectfully disagrees. The previous Office Action explained why just the portion “d” may be considered to be the LDD region. Further, the claim states that the primary grain boundaries are not positioned in the LDD *or offset region*. As explained in the previous Office

Action, the region “d” could at the very least be considered the offset region, since an “offset region” can be any arbitrarily defined region. Applicant further argues that:

“no where does Oka disclose that the other portion of region 4 was doped with additional impurities during heat treatment, as alleged in the Office Action. At most, Oka discloses that the impurity 14 diffuses from the high concentration region 5 into the low concentration region along the grain boundary when the heat treatment that activates the impurities is provided (column 13, lines 61-64)".

It appears that Applicant does not necessarily disagree with the Examiner’s position, but instead simply disagrees with the Examiner’s characterization of the impurity diffusion as “doping”. Whether or not the diffusion process is referred to as doping is irrelevant since the end result is the same. As acknowledged by Applicant, impurities diffuse into region 4. As disclosed by Oka, the diffusion stops at the grain boundary running perpendicular to the channel direction (see Figure 1b of Oka, and col. 3, line 64 - col. 4, line 3). Therefore, the region labeled “d” has a low impurity concentration than the other portion of region 4. Hence, the region labeled "d" can the lightly doped portion (relative to the other portion of region 4). Furthermore, as explained above, this portion labeled “d” (which does not contain any primary grain boundaries) could alternatively be considered the "offset region".

Applicant argues regarding claims 3 and 9 that "different processes product different products as can be seen in the attached images of various crystallization structures due to different crystallization methods". However, these arguments are not persuasive. Applicant has not provided evidence to show how the claimed process necessarily results in a different structure from that disclosed by Oka. Applicant has simply provided pictures from an unknown source of various different crystallization techniques, with no indication if any of those techniques shown are the same as the crystallization method disclosed by Oka. Further,

Applicant is reminded that arguments of counsel cannot take the place of evidence in the record.

*In re Schulze*, 346 F.2d 600, 602, 145 USPQ 716, 718 (CCPA 1965); *In re Geisler*, 116 F.3d 1465, 43 USPQ2d 1362 (Fed. Cir. 1997).

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew C. Landau whose telephone number is 571-272-1731.

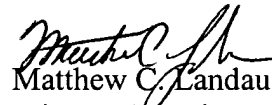
The examiner can normally be reached on 9:00AM - 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ken Parker can be reached on 571-272-2298. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Matthew C. Landau  
Primary Examiner  
Art Unit 2815  
12/13/07